Communications

1. Conditions and Modes of Communication

489 The communication system of Ukraine is far from satisfactory, although natural conditions favor the construction of roads and railways and communication by ship. The defects in the Ukrainian network of communication are due rather to historical causes: the fact that it belongs to a state that has never been able to maintain an orderly system of communication is the main reason for the inadequacy of communication routes and facilities in Ukraine.

As the sea forms only 1/4 of the entire frontier of Ukraine and as the nation was shut off from it for centuries by peoples of other races, it never became a main artery of communication for the country. The rivers, once so important as channels of communication and colonisation have declined more and more with the increasing claims made by modern transportation.

Country roads cannot be included in a system of long-distance communication. Geological conditions in some districts are unfavorable but an incapable policy of communications and economy is mainly responsible for the present situation.

2. Railroads

490 The railway is therefore the most important element in the system of communications; 209 million t were transported by rail in 1934 as compared with 5.8 million t by river and 8.5 million t by sea.

The first railroad was constructed in 1863—65 from Odessa to Balta (260 km) and was extended in 1870 to Kirovohrad. This

3: Mirchuk S-4 (no date) 1949 RDI Ukraine RDJ

496 was due to the initiative of local authorities and to business circles in Odessa. A connection was desired between the centers of grain production and the harbors of Odessa and Mariupil and the Donets Basin. Moreover Odessa wanted to be linked up with Germany's long-distance communication system.

But the business world of Moscow feared an invasion by foreign capital and wanted to secure the Ukrainian market for itself. So the railway network of Ukraine was developed under the influence of Moscow. The main lines were first of all to connect Petersburg and Moscow with remote areas and the sea and to facilitate the export of grain from Ukraine from harbors on the Black Sea. So the railways in Dnipro-Ukraine run mostly north-west-south-east, which only partly corresponds to historical communications (the Viking road from the Baltic to the Black Sea). The west-east line of communication was mainly of importance within Ukraine. Long-distance connections with Central Europe were not taken into consideration at all. There was no provision made even for convenient connections between Kyiv and Kharkiv, Odessa and other large towns. Some lines to the (north) west were intended to afford facilities for transporting grain to the Baltic ports (Kyiv-Berestya; Kyiv-Kowel; Romen-Libau). The most important line connects the Donets Basin with the ore-fields at the Dnipro-Bend and also with the sugar factories in the Right Bank Region.

The development of railroads in the Donets Basin began as early as 1869 and was continued in the seventies. In the eighties the Zaporizha railway was built. If the transportation of grain had originally determined the line of communications, more importance was now laid on the transportation of coal, ore, and iron. In the second half of the seventies 5.1 million t grain, 1.5 million t coal, 0.4 million t iron and steel were transported. Round about the turn of the century (1898—1902) the corresponding figures are 10.2, 10.6, and 2 and in 1913 = 14.6, 14.6, and 3.4 million t, and, in addition, 6 million t minerals, 3.6 million t wood materials, 2.5 million t sugar beet, 1.7 million t industrial wood, 1.4 million t flour, 0.8 million t salt and 0.6 million t sugar.

3: Mirchuk S-4 (no date) 1949 RDl Ukraine RDı

The Donets Basin is a great junction, though smaller places are usually selected for the intersection of routes. Kyiv is not a proper junction, as only two lines cross each other here: in Kharkiv, on the other hand, 6 lines meet and make the town one of the most important junctions in Dnipro-Ukraine. 496

But Lviv is the busiest center of communication on Ukrainian territory, 9 lines radiating from it in all directions. 5 lines intersect in Stryj, Stanislaviv and Tarnopil respectively.

The network of railways in Galicia is altogether more centralised and more practically planned for strategical reasons and as a result of the separation from Hungary by the Carpathians. The main-lines run west-east (Cracow-Peremyshl-Lviv-Stanislaviv-Chernivtsi). 5 lines cross the mountains (Popradtal, Lubkovpass, Uzhok, Beskides and the Tatra Pass). 10 lines went to the Russian frontier, but only three were continued on the other side.

The density of the railroad net is also greater in the provinces formerly under Austria-Hungary than in those under Russia, with the exception of the Donets Basin. The figures for the entire Ukrainian territory can be compared with those for the rest of Europe in the middle thirties as follows:

Country	Length in 1000 km	Density per 100 sq. km	Density per 10 000 inhabitants
Germany	54.2	11.5	8.2
France	42.5	7.7	10.1
England	30.8	12.6	6.6
Ukraine	24.4	2.6	4.5
Poland	20.1	5.2	6.0
Italy	17.0	5.5	4.0
Czechoslovakia	13.5	9.6	8.9
Roumania	11.2	3.8	5.9
Belgium	5.0	16.4	6.5
USSR	83.5	0.4	4.9

The intensity of communication by rail was not great. The average speed per hour in Western Ukraine was 60—70 km, in the eastern areas of the national territory 50—60 km, but only

496 on the main lines. On side-lines the speed was about half as much. The distance between stations in Dnipro-Ukraine are far too great (10.8 km); in Carpatho-Ukraine and Galicia they are 4.2 and 3.7 respectively.

497 Travel is constantly increasing in Ukraine. In Dnipro-Ukraine the number of passengers rose from 49 millions in 1913 (5.3 mrd. passenger/km) to 60 millions in 1927/28 and to 200 millions in 1935 (11.6 mrd. passenger/km). Goods traffic increased from 95 million t (19.6 mrd. t/km) to 204 million t (51.4 mrd. t/km) in 1935. This increase of 300 % and 115 % respectively corresponded neither to the extension of the railroad net (23 %) nor to the increase in the means of transportation (engines 25 %, trucks 50 %) even if the traction power of the individual engine had greatly increased. (from 143 000 t in 1914 to 221 000 t in 1933).

3. Country Roads

491 In Dnipro-Ukraine there are mostly country-roads without side-ditches. They are not artificially built, and are often impassable in spring and autumn, and too dusty in summer so that they can only be used in winter. As they also form the approach to railway stations, they are responsible for gluts or shortages of railroad trucks: sugar factories, in particular, suffer from these circumstances during the beet harvest. Before the first World War there were only 2 770 km of paved highways (and 3 500 km of others). In Volynia and Podolia there were 13 or 15 meters respectively per sq. kilometer, in the districts round Kyiv and Chernyhiv, 5.6 meters each, while in France there were 1125 meters and in Germany 560 meters. Under the first Five-Year Plan serious attempts at improvements were made; the proportion of paved highways in the entire network of roads was to be raised from 2.3 % to 4.5 %. In reality the entire length of paved highways in 1935 amounted to 8 500 km. Northern Caucasia had 600 km of paved highways at this time. Things were much better in Galicia, which had 10 100 km of paved highways. After the First World War, however, Poland neglected road construction. In Carpatho-Ukraine, on the other hand, where there were 2 400 km of paved highways, the

4: Allen H-4 (no date) 1941 RD1 Ukraine RD1

439 Mariupol. The supply came from the big New Russian estates and from the German, Moldavian and Serb colonies founded in the eighteenth century. Towards the middle of the century the agricultural production of the Ukraine and the New Russian Governments began to form an important proportion of the general production of the Empire, but still these regions could not be called 'the granary of Russia' on account of the continuing lack of proper means of communication with the central provinces. The upper Dniepr and the upper course of the western Dvina were too shallow to serve adequately the needs of modern transport, and as late as the Crimean War the Russian railway system had not been extended south of Moscow.

• 496 The first important imperial trunk lines were constructed during the sixties and seventies: Moscow-Kursk-Kharkov-Rostov-on-the-Don (with branch lines from Kursk to Kiev and from Kharkov to the Crimea); Moscow-Voronezh-Rostov-on-the-Don (with extensions to the northern Caucasus); Petersburg-Vilna-Rovno-Kiev-Odessa; Kharkov-Kremenchug (on the Dniepr)-Nikolaev. Railway construction had taken the 'meridial' direction: the economic axis of the Empire during the three decades 1860–90 ran from 'the industrial north' to 'the agricultural south'.

The new railway system improved the conditions for the export of Ukrainian and New Russian grain through the Black Sea ports. At the same time access to the north was provided by the railway 'diagonal' connecting Orel (on the Moscow-Kursk line) with Riga: this 'diagonal' continued to the south-east through the northern part of the Don region to Tsaritsyn on the lower Volga. Further, a special 'grain line' linked the Ukraine with the Baltic: starting from Kremenchug on the Dniepr, it passed through the Governments of Poltava and Chernigov, White Russia and Lithuania to the new ice-free port of Libava (Libau).

311 It thus began to appear that the Ukrainian and New Russian provinces were indeed to become the granary of the Russian Empire. But the colossal economic potentialities of the outlying [496] quarters of the Empire, which began to come into development during the second half of the nineteenth century, very soon overwhelmed this comparatively modest conception. In the seventies the first 'latitudinal' railway threw a bridge across the Volga at Samara and was continued as far as the southern Urals. The steppes beyond the Volga offered immense new space for agricultural exploitation. In the meantime the conquest of the Caucasus had been completed, and the rapid expansion of the economic life of the Kuban and Terek regions had begun. Soil conditions in the northern

Caucasus were not inferior to those of New Russia and climatic conditions were much more favourable: rainfall, owing to the proximity of the great Caucasian ranges, was more regular. The Kuban region did actually become a granary. Rostov-on-the-Don grew and flourished in true 'American style'. A new grain port, Novorossiysk, was built and soon became a rival to Odessa.

Further railway development accompanied the exploitation of the Donets coal-mines and the growth of a metallurgical industry centred on the Krivoy Rog iron-ore deposits located to the west of the Dniepr. Two parallel lines were constructed to pass through Ekaterinoslav and the old district of the Zaporogian *Sech*, connecting the Donets basin with Krivoy Rog. Thus, simultaneously with the industrial development in the south and the flowering of the North Caucasian region, a new 'granary' and new regions of great mineral potential began at the turn of the century to impose a 'latitudinal' direction on railway construction: the opening of the great Siberian railway gave almost a priority to the possibilities of agricultural production in western and southern Siberia, and connected Chelyabinsk, through Ekaterinenburg, Vyatka and Vologda, with the Baltic ports. At the same time 'diagonal' development was proceeding far to the south-east through Turkestan to the frontiers of Afghanistan and the Chinese Empire.

The importance of the natural riches of Asiatic Russia came to be realized with an ever-growing force during the reign of Nicholas II (1896–1917). The principal economic axis of the Empire was evidently changing direction from the 'meridial' to the 'latitudinal'. The political policy of the Empire during the same period, with its emphasis on the Balkan Slavs and on the 'Byzantine' dreams of the epoch of Catherine II, was certainly archaistic in tendency and bore no relation to the fundamental realities of Eurasian geography.

The War of 1914–18 brought down in destruction that peculiarly hybrid cultural synthesis which was Romanov Russia; it obliterated at the same time the neo-Byzantine plans of the Pan-Slavists and weakened the whole position of Russia as a European power. The loss of a wide belt of territories (the whole inheritance of two hundred years of Romanov autocracy) between the Arctic and the Black Sea imposed on the new Soviet state the sheer necessity of a 'latitudinal' rather than a 'meridial' development. During the last two decades new efforts have been made to open up the agricultural and mineral wealth of the steppes beyond the Volga and the Ural in western and southern Siberia and of the valleys of the Altai and the Tien-Shan; and, while historic Russian ambitions in the Balkans

727 their posts and the vast majority of those who were Communists
316 received more or less sinecures above ground. Their places were
[466] taken by forcing the Ukrainian peasants, including a large percentage of young girls, to work in the pits with the minimum of safeguards. Little money was appropriated for the restoration of the damaged housing, for as the writer Korniychuk declared in one of his works, "Ukraine was so thankful for the success of Stalin that they did not care how they lived, for if he had perished, life would not be worth living under any circumstances."

727 With this attitude prominently emphasized by the leading propagandists, it is easy to see that the resources and energies of the population were directed by force rather toward those items that would advance the importance and the convenience of Moscow, than those that would be of advantage to the local population.

• [496] The one exception was the necessity for rebuilding immediately and strengthening the railroad communications between the Donbas, Moscow, Leningrad and the Black Sea ports—in other words, the extreme eastern part of the Ukraine which was slated for a special development with roads and railroads linking the country up with the Russian centres rather than with the other Ukrainian centres to the west for these were regarded as exposed centres in case of a new outbreak of hostilities and were to be neglected until they were masked by the extension of Soviet power over the satellite countries.

474 The collectivized agriculture was in little better shape. In
341 that part of the Ukraine which had been under Soviet control before 1939, the authorities revived the collective farms but they had been so badly ruined that at first the authorities were often willing to be more considerate of the members. Immediately after the war they allowed them to group themselves into links or permanent sections of some eight to ten people who would thus come to feel themselves a distinct unit in the collective farm. It did not take long for the more rigid Communists to decide that this sense of permanence was in a way a defiance of the principles of collectivization, for very often members of the same household, if it were at all numerous, would group themselves into a link. In such cases the link became more prosperous, for it was in a way

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7:Bregy & Obolensky H-4, 5 (no date) 1940 RD1 Ukraine RD1

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MAP No. 5

7:Bregy & Obolensky H-4, 5 (no date) 1940 RD1 Ukraine RD1

433 to enlarge upon the reasons which have determined the destruction of the favourable results which ought to have appeared in this direction. We shall only limit ourselves to enumerating the more important points.

1. The defective distribution due to frequent failures of transport which are expressed by the accumulation of unused manufactured goods in the great industrial centres and by the irregularity of furnishing the factories with raw materials.

2. The very inferior quality of the manufactured goods, the enormous percentage of rejects, the continuous shortage of spare parts required for the normal functioning, and the upkeep of the machines. These defects are due to an insufficient technical staff, to low wages and salaries, and to the police system introduced into the administration of the industries.

3. The lack of co-ordination between the different branches of industry, the poor condition of State commerce, due to the incompetence of the staffs and to the very complex and very slow bureaucratic procedure.

Nevertheless, imperfect though they may be, the new mines and factories exist and under other political and economic conditions, accompanied by the revival of agriculture, of foreign commerce, and of a better functioning of transport, the Ukraine would be put on the same economic level as the best organized and the richest countries of the world.

IV

Means of Communication

496 In no other sector of economic activity does the link
489 between the Ukraine and the rest of Russia become so clearly apparent as in the matter of the organization of

7:Bregy & Obolensky H-4, 5 (no date) 1940 RD1 Ukraine RD1

the railway system. At a superficial glance at the map we immediately see that the main railway lines follow the ancient riverways which unite the Black Sea with the rest of Russia. Towards the north, however, they divide into two important branches, that of Leningrad, the old direction to Novgorod, and that of the new direction to Moscow. The Russian railways radiate from these two centres, Moscow and Leningrad, to end in the numerous ports of the White, Black, or Caspian Sea or the Pacific Ocean or at the western and eastern frontiers of the State.

In this Russia does not differ much from, say, France where, too, the railway network converges towards Paris as a centre.

Forming a part of the Russian railway system, the Ukrainian main lines are only sections or continuations of the Russian main lines, starting, as we have said, from Leningrad or Moscow.

These are the lines : (Leningrad–Jlobin)[1]–Samy–Kiev. (Leningrad–Vilno–Rovno)–Kazatyne–Odessa. (Moscow–Koursk)–Kharkov–Sinelnikovo (Sebastopol) and (Moscow–Koursk)–Kharkov–Marioupol–(Rostov-on-Don–Caucasus). (Moscow–Briansk)–Koupiansk–Lougansk.

The Ukrainian network, including the continuations of the great Pan-Russian lines, whose length totals 14,500 kilometres (31 kilometres of rail for each 1000 square kilometres and 4·6 kilometres per 10,000 inhabitants), can be divided into four distinct classes :

1. *Lines for the export of corn* uniting the agricultural regions with the ports of the Black Sea. The direction of these lines can only be justified by the conditions of a normal expansion of grain export and the importation of colonial produce, to which the advent of Soviet rule has brought an unfavourable change.

[1] The towns put in brackets are outside Ukrainian territory.

7:Bregy & Obolensky H-4, 5 (no date) 1940 RD1 Ukraine RD1

000 The import and export were characteristic of the pre-Great War Ukrainian economy. To-day these factors are almost absent.

496 At the beginning of the twentieth century a railway called the corn line had been constructed, with termini at Romny and Libava, a port on the Baltic now belonging to Latvia and recently partly given back to Russia by special treaty, for the corn export trade. It is clear that to-day its Ukrainian section, which does not exceed 250 kilometres, has only a very restricted local interest. Recent events may bring some changes here.

The movement of merchandise on the network which, before the Great War, had been most important in the direction from north to south, takes to-day an opposite direction and brings the surplus of cereals from the southern region towards Kharkov and Moscow. As to the most recent grain line, the construction of which had been begun in 1913 and had been completed after the Revolution, connecting Kherson and Nicolaiev to Kharkov via Zaporojie, it has to-day acquired a purely industrial character and serves to transport metal and coal to the factories of Kharkov on the one hand and to those of Kherson and Nicolaiev on the other.

489 2. *Means of communication* which serve the mines of
496 Krivoi-Rog and the coal basin of the Donietz. The region of the Donietz has a sufficiently close network and is provided with many lines with a double track which connect the different mines. Nevertheless this network was clearly insufficient already before the last war, when the annual production of coal was only 40 per cent of that of to-day. The enormous accumulation of unused coal at the stations, as a result of the weakness of the transport system, had forced pre-Great War Russia to import coal from England.

The network of the Donbass is linked with the Krivoi-

496 4. *Local railway lines*, of which the most important are those which link the large towns and join them to the agricultural regions.

Although certain strategic lines now function as lines of local importance, owing to the change of the frontier, this fact has not remedied the insufficiency of such railways.

The reinforcement of industrial lines, the entire rebuilding of the stations on the strategic lines in the sense of increasing the number of storage lines, as well as the construction of new local lines, must be considered a task of immediate importance so as to avoid the slowing down of the economic development of the country. Actually if the economic potential of the Ukraine is greater or at least equal to that of France on roughly the same extent of territory, the Ukraine only possesses one-third of the rail network of France (14,500 kilometres as compared with 44,000 kilometres). If one adds the almost complete absence of roads to this, especially on the left bank of the Dnieper and in the south of the Ukraine, the inactivity and unproductiveness of the Soviet regime in the sphere of the construction of new lines seems difficult to explain.

491 In reality the Ukrainian network of roads before the Great War was in practice limited to a single road which was maintained in a satisfactory condition and which linked Kiev with the Austrian frontier via Jitomir. As far as we know that was the only motor-car road before the last war in the whole of Europe. This main road had several important local branches leading towards the south and ending at Kamenetz-Podolsk, and leading towards the north in the direction of Korosten and Kowel. Several very narrow carriage roads, whose foundations and surface were very poor, were to be found in the region of Kiev and in Podolia and they were being

7:Bregy & Obolensky H-4, 5 (no date) 1940 RD1 Ukraine RD1

Kog by a main line which is devoted to the continual exchange of coal for mineral. The stock of this mine is the most powerful of the Union and the average loading per axle (about 4·5 tons) is the highest in Europe. The system of the coal network is characterized by the working of the raw material in the proximity of the districts of extraction. Numerous branch lines are prolonged into supplementary lines which radiate towards the outer regions, to end at the great centres at which the metals are worked. This whole network, destined for the transport of heavy materials, and which dates from the last decades of the nineteenth century, is in general very well constructed and even partly reinforced by electric welding.

The only railway of importance constructed since the October Revolution, which joins the industrial network, is that which links Moscow to Lougansk. The direction of this line confirms the continuation by the Soviet Government of the traditional economic policy, in tending to organize the Russian railway system on the Imperial plan.

3. *Strategic lines* are represented by the line Odessa–Kiev, with a double track and with numerous branches towards the Polish and Rumanian frontiers, some of which continue in a direction of Lvov, others to Kovel, to end at Warsaw.

The exploitation of these mines, since the establishment of the Russo-Polish frontier after 1920, was fundamentally changed. As a result of being cut by the frontier, they had lost their importance as strategic lines, since the principal junctions, such as Kovel or Rovno, specially intended for this purpose, were recently outside the frontiers of the Soviet Ukraine. Parallel to this they had experienced a diminution of traffic owing to the most complete disappearance of trade with Poland.

9: Prothero G-4 (no date) 1920 RD1 Ukraine RD1

The navigable length of the principal rivers is as follows: 487

	For Shipping. Miles.	*For Rafting only.* Miles.
Dnieper	1,250	136
Desna	537	166
Dniester	521	35

All the above-mentioned waterways suffer in common from four serious defects. (1) They are frozen for a considerable period of the year. In the basin of the Dnieper traffic was only possible in the first ten years of this century for an average of 230 days above the rapids and 250 below. Other rivers are in a similar case. (2) The volume of water falls rapidly in summer, and in dry seasons lack of water impedes navigation seriously. (3) Wholesale cutting down of the forests on the banks has led to alteration of the beds of the rivers and the splitting up of the channels. (4) Works for the improvement of navigation scarcely exist, not even the most urgent having been undertaken. 487 502

The principal cargoes carried are breadstuffs, wood, and coal. Cereals are embarked in great quantities on the lower Dnieper and Southern Bug for shipment abroad from Kherson and Nikolaev. The upper Dnieper and the Dniester carry timber. 505 439

Navigable canals do not exist in the Ukraine. Should the scheme for a Dvina-Dnieper canal materialize, it would have a noticeable commercial effect upon the towns of Kiev, Yekaterinoslav, Alexandrovsk, and Kherson. 503

(c) *Railways*

Railway System.—There are in the Ukraine three great railway centres, viz. Kiev, Kharkov, and Yekaterinoslav. 496

1. From Kiev a line runs in a westerly direction to Sarny and Kovel, continuing thence to Cholm and Warsaw.

A second line goes in a north-easterly direction to Bakhmach, thence *via* Kursk and Orel to Moscow.

9: Prothero G-4 (no date) 1920 RD1 Ukraine RD1

496 From Bakhmach an alternative line runs *via* Bryansk to Moscow.

In a south-south-east direction a third line goes to Yelisavetgrad, Nikolaev, and Kherson.

A fourth line runs eastward to Poltava and Kharkov.

Lastly, a line in a south-west direction goes to Vinnitsa, whence a line runs westward to Proskurov and Kamenets Podolsk (with two short branches to the Galician frontier), and another line runs southward to Odessa.

2. From Kharkov a line runs northward to Byelgorod, Kursk, Orel, and Moscow.

Another goes in a south-east direction to the Donets coal and iron region, Novocherkassk, Rostov-on-Don, and the Azov ports.

A third line goes east and north-east *via* Kupyansk to Voronezh and Tambov.

A fourth goes southward to Pavlograd and Yekaterinoslav.

3. From Yekaterinoslav a line runs in a north-west direction to Alexandria, Byelaya Tserkov, Fastov, and Kiev.

A line to the Donets coal and iron region goes eastward, with branches to the Azov ports, Berdyansk, Mariupol, and Taganrog.

Another line runs south to Alexandrovsk, Melitopol, and the Crimea.

None of the three great railway centres, however, is touched by a long new line which runs from Bakhmach in the Government of Chernigov, *via* Piryatin, Cherkassi, and Vosnesensk, to Odessa, thus giving to a badly-served district an outlet for its share of the cereal export trade.

A network of short lines serves the Donets coal region and the Krivoy-Rog iron region, with connexions to Yekaterinoslav and the ports.

471 *Finance; Relations to Government.*—Five separate concerns are interested in the Ukraine railways—the South-Western Railway, the Southern Railway, the Yekaterininsky Railway, the Moscow–Kiev–Voronezh

9: Prothero G-4 (no date) 1920 RD1 Ukraine RD1

Railway, and the South-Eastern Railway. The first three belong to the State, and almost the whole of their mileage is in the Ukraine; the other two are privately owned, and some portion of their mileage is outside the Ukraine boundaries.

It is not possible to procure figures for the working of that proportion which is inside the limits of the Ukraine, and the figures for 1912, given below, are for the entire systems:

	Length of line. Miles.	*Gross receipts. Million roubles.*	*Nett receipts. Million roubles.*	*Weight carried. Million tons.*
South-Western Railway	2,604	73	30·4	15
Southern Railway	2,042	66	30·5	22
Yekaterininsky Railway	1,871	60	26·9	26
Moscow–Kiev–Voronezh Railway	1,652	37	16·2	10
South-Eastern Railway	2,168	55	24·6	11
Total	10,337	291	128·6	84

The Yekaterininsky line was constructed by the State; the Southern and South-Western lines were recently purchased from private owners.

The Moscow–Kiev–Voronezh Railway is a private concern with a share capital of £1,500,000. Debentures to the value of £35,000,000 have been issued at 4–4½ per cent. at different periods. The State has power to take over the line at any time on a basis agreed upon in the original concession. There is a State guarantee on the loan capital.

The South-Eastern Railway has only a portion of its line in the Ukraine, mainly in or near the Donets region. The share capital is about £3,000,000. Debentures and other loan capital amount to about £18,800,000. The State has power to purchase the line at short notice on terms fixed in the original concession. There is no State guarantee on the capital or loans. A number of lines in the Donets region,

9: Prothero G-4 (no date) 1920 RD1 Ukraine RD1

formerly belonging to the South-Eastern Railway, have been recently acquired by the State.

The money markets of Paris, London, and Amsterdam appear to be those principally interested in the loans of these railways; the financial circles of Berlin and Vienna are concerned in a lesser degree.

Up to the year 1889 railway rates in Russia were in a state of chaos. The Government then took the matter in hand, and during the years 1893–4 inaugurated a system which, with modifications, has remained in use. The zone method is applied to both goods and passengers, with a diminishing rate for each additional zone entered by the traffic. Cereal rates received special consideration, and differential tariffs exist for the carriage to Black Sea and Azov ports of cereals destined for export. Preferential rates are also granted on coal, iron and manganese intended for export.

Adequacy to Economic Needs: Possibilities of Expansion.—Taken as a whole, the railways of the Ukraine are not adequate to the needs of the country. In the Donets region railway extension by private enterprise has kept fairly level with industrial needs, and new projects were recently being actively promoted. In the agricultural portion of the country, however, the lack of railways is a serious handicap to all kinds of industry. The greater portion of the mileage is single line, and the rolling stock is of poor capacity and not kept in good repair.

A number of lines are under construction in the Donets basin to link up existing ones or to serve new mines recently opened, and a new line is being constructed to connect Yekaterinoslav with Kherson and Nikolaev by a direct route.

A projected line is the Podolian Railway, which would run from Shepetovka to Kamenets Podolsk, a distance of 149 miles. By another project a railway running due north from Jitomir *via* Mosir and Mohilev to Vitebsk would give a direct main line between Petrograd and Odessa, which does not at present exist, a detour *via* Kiev being necessary.

491 portation by land with ox teams. In the three South Ukrainian governments in 1897, 100,000 such ox carts lumbered along on the ancient, worn-out chumak roads which were many hundreds of meters wide. Neither the Polish nor the Russian administration bothered about road building. Even today there are large cities in the Ukraine which are connected with one another only by means of enormously wide country roads. While Galicia during Austrian rule had about 10,000 kilometers of paved roads, and the Czechs built 2400 kilometers of roads in the Carpatho-Ukraine, the Soviet Ukraine succeeded in raising the figure to a full 8900 kilometers of highway in 1935, and the Kuban region to 600 kilometers. In 1935, there were 25,200 kilometers of improved natural roads which approximately correspond to our field roads, and 168,000 kilometers of "natural earth roads" which are impossible during the rainy season and in thaws. (120)

120. Kubiyovich: Geography, page 479 ff.

• 496/173/ There are only 24,400 kilometers of railways running through the entire Ukrainian area from the Carpatho-Ukraine to the Kuban, from the Black Sea up to the Pirpyat Swamps (in Germany there were 68,548 kilometers of railroads in 1935). The only actual railway junction in this large country is Lwów, from which nine lines emanate. Kiyev and all the other cities are merely intersections of two lines. In the twenty years of their rule the Bolsheviks have built only 1000 kilometers of railroads. (121) They, too, did not

121. Kubiyovich: Geography, page 484.

alleviate the main deficiency of the Ukrainian railway network the lines of which run north and south, toward Moscow and the Baltic: the important

•496 lateral connections are still wanting. Anyone wishing to go from west to east in the Ukraine is obliged to reckon with a circuitous route and a long period of travel. For instance, you travel 32 hours from the capital of Kiyev to Taganrog on the Sea of Azov which is 700 kilometers distant, even though you go forever over flat steppes; from Kiyev to Kherson 450 kilometers to the south you, travel 16 hours. (122) More-

122. Kubiyovich: Atlas, page 50.

over, the Ukrainian railway network is so widemeshed that there are large districts which are 40 to 60 kilometers away from the railroad line, as on the lower Dnieper north of the Bug estuary and in the Kuban region. The most traveled stretch is the Moscow-Khar'kov-Donets Basin-Kuban line with more than 10 passenger trains a day. Between Kiyev and Odessa there are five to six passenger trains a day, as well as between Kiyev and Moscow. There is not a single serviceable cross connection except the line between the industrial regions of Krivoy Rog and Donets, which was built in 1884. Between two such important cities as Kiyev and Khar'kov there are only one or two passenger trains a day. Odessa can be reached from the Donets region only by a very roundabout way. Through the lonely reaches of the Western Soviet Ukraine only one or at best two passenger trains run daily. (123)

123. Kubiyovich: Atlas, page 49.

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505/174/ The most important trade and communications route of the Ukraine until the pre-war period was the Dnieper. It and its tributaries take up 4300 kilometers of the total of 6000 kilometers of navigable rivers in the Ukraine. Shipping is not very important on the rest of the rivers, such

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strongly developed. In the left-bank Poles'ye, land has long been cultivated and drained. There are occasional marshy and forested sections, mainly between the Dnieper and the Desna. The chief crops are hemp, tobacco, buckwheat, and leguminous plants. Orchard farming is important. The right-bank wooded steppe is the principal agricultural region of the Ukraine. It combines fertile black earth with a warm and moist climate, and the ready availability of phosphate fertilizer. The sugar beet is predominant and closely linked with the sugar industry. Among the cereals, rye, winter wheat, and oats are most important; potatoes and leguminous crops are also grown. The by-products of sugar refining and fodder crops support large livestock herds raised for dairy products and meat. The growing of fruit is of national importance. Vineyards lie in protected valleys near the Dniester River. The left-bank wooded steppe grows crops similar to those of the right bank. Sugar beets decrease toward the east and are gradually replaced by sunflowers. Similarly, winter wheat gradually makes way for spring wheat. In the southern steppes, where a drier climate prevails, wheat is the most important crop. Rye, corn, and barley are also grown, the latter mainly in the very dry districts. Along the Sea of Azov and westward to the lower Dnieper cotton has been introduced in recent years and is grown without irrigation. Ukrainian cotton is of rather poor quality and produces little fiber. Melons are grown to a great extent, and there are vineyards along the Sea of Azov coast and around Odessa. In the Carpathian realm, the northern foothills abound in wheat and sugar beets. Up-slope dairy farming is important. Agriculture is poorly developed in the Transcarpathian Ukraine. Large areas are covered by forests and pasture land. In the vicinity of the large metropolitan centers, such as Kiev, Khar'kov, L'vov, as well as in the densely inhabited sections of the Donbas, around Krivoy Rog, and along the Dnieper, truck produce and dairy farming are most important.

The intensely developed economy of the Ukraine requires a correspondingly well-developed transportation network. In view of the shallowness of most of the Ukrainian rivers, the railroads bear most of the load. The Ukraine has the densest rail network of the USSR, the chief centers being at L'vov, Kiev, and Khar'kov. Among recently completed lines and spurs, the direct Donbas-Moscow trunk is of the greatest significance. Only since 1932, when the construction of the *Dneproges* dam was completed and an artificial lake was created at the site of the rapids (a former obstacle to navigation), has the Dnieper become the